Graphing

Your analysis section could more accurately be called your "data presentation and analysis" section, because the first thing you must do in an analysis section is display the data you are analyzing. You should *not*, however, display your original or "raw" data (the numbers you wrote down in your lab notebook) in tables in your report, because it's very difficult to pick out data trends from a table. Instead, you should present you data graphically.

Your graphs may be hand-drawn on graph paper or generated on a computer. Either way they must obey the following guidelines:

1. Scale your axes to take the best possible advantage of the graph paper. That is, draw as large a graph as possible, but the divisions on the graph paper should correspond to some nice interval like 1, 2, or 5 (times some power of 10). If you have to make the graph smaller to get a nice interval, make it smaller, but check that you've picked the nice interval that gives you the largest graph. Making the graph large will display your data in as much detail as possible.

2. The lower left-hand corner need not be the point (0,0). Choose the range of values for each axis to be just wide enough to display all the data you want.

3. Mark the scale of each axis (the number of units corresponding to each division) for the entire length of the axis.

4. Label both axes, identifying the quantity being plotted on each axis *and* the units being used.

5. Give each graph a title. The title should summarize the information contained in the axes. It should also give any additional information needed to distinguish this graph from other graphs in the report.

6. Give each graph a number (e.g., "Figure 2"), which you use in the body of the report to refer to the graph.

Just drawing the graph isn't enough, though. You must tell the reader that it exists, what it's about, and where it is. A typical first sentence in an analysis section reads something like this, "The dependence of (something) on (something else) is shown in figure 2." Notice that you have identified the graph both by the data being displayed and by stating a figure number. Identifying the graph by the data tells the reader why this graph is part of your logical argument about the